TEMA 1: NÚMEROS REALES: Propiedades de las raíces

1. $2\sqrt{12} - 3\sqrt{75} + \sqrt{27} =$

$$2\sqrt{2^2 \cdot 3} - 3\sqrt{3 \cdot 5^2} + \sqrt{3^3} = 4\sqrt{3} - 15\sqrt{3} + 3\sqrt{3} = -8\sqrt{3}$$

2. $$\frac{\sqrt[6]{128}}{\sqrt[6]{16}} = \sqrt[6]{\frac{128}{16}} = \sqrt[6]{\frac{2^7}{2^4}} = \sqrt[6]{2^3} = \sqrt{2}$$

3. $$\sqrt[4]{\frac{\sqrt[3]{2}}{\sqrt{\frac{1}{8}}}} = \sqrt[4]{\frac{\sqrt[3]{2}}{\sqrt{2^{-3}}}} = \sqrt[4]{\sqrt[6]{\frac{2^2}{\left(2^{-3}\right)^3}}} = \sqrt[4]{\sqrt[6]{\frac{2^2}{2^{-9}}}} = \sqrt[4]{\sqrt[6]{2^{11}}} = \sqrt[24]{2^{11}}$$

$$\frac{1}{8} = \frac{1}{2^3} = 2^{-3}$$

4. $$\sqrt{\sqrt[3]{\sqrt[3]{2\sqrt{2}}}} = \sqrt{\sqrt[3]{\sqrt[3]{\sqrt{2 \cdot 2^2}}}} = \sqrt{\sqrt[3]{\sqrt[3]{\sqrt{2^3}}}} = \sqrt[72]{2^3} = \sqrt[24]{2}$$

5. $$\sqrt{3} \cdot \sqrt[3]{9} \cdot \sqrt[4]{27} = \sqrt{3} \cdot \sqrt[3]{3^2} \cdot \sqrt[4]{3^3}$$